

- Write the equations of the tangent line to the curve  $f(x) = -\sin(x)$  when  $x = \pi$ .
- Given  $h(x) = (3x^3 - x^2 + 10x + 2)\cos(x)$ , find  $h'(x)$ .
- Find the derivative of the following function in simplest form:  $y = \frac{3x^2 - 2}{2x - 3}$

For questions 4 – 7 use the following table to find  $y'$  at  $x = 1$ , if:

<b>f(1)</b>	<b>f' (1)</b>	<b>g(1)</b>	<b>g' (1)</b>
3	4	1	-2

- $y = f(x)g(x)$
- $y = \frac{f(x)}{g(x)}$
- $y = x^4 g(x)$
- $y = \frac{x^3 - 2x}{g(x)}$
- Find the coordinates of the point(s) where  $f(x) = \frac{1}{4}x^4 - \frac{1}{3}x^3 - x^2$  has horizontal tangents.
- Find the equation of the tangent line to the curve,  $f(x) = \frac{1}{4}x^4 - \frac{1}{3}x^3 - x^2$  when  $x = -2$
- Find  $f'(x)$  if  $f(x) = \frac{3x^2}{x-1}$
- Find  $f'(x)$  if  $f(x) = 3x^2 \sin x$

Find the derivative of each of the following:

- $f(x) = 5x + 2\sqrt[3]{x} - \frac{3}{x^2}$
- $f(x) = \sin(3x+1)$
- $f(x) = \sqrt[4]{(x^2 + 5x)^3}$
- $y = \ln x^5$
- $y = e^{4x^3+2}$
- $y = x^5 - \ln(x) + 5e^2$

